

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION



MISSOURI STATE OPERATING PERMIT

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

Permit No. MO-0058246

Owner: City of LaPlata
Address: 101 South Gex Street, LaPlata, MO 63549

Continuing Authority: Same as above
Address: Same as above

Facility Name: LaPlata Wastewater Treatment Facility
Address: LaPlata, MO 63549

Legal Description: SE ¼, SW ¼, Sec. 7, T60N, R14W, Macon County

Receiving Stream: Tributary to Long Branch Creek (U)
First Classified Stream and ID: Long Branch Creek (C)(00696)
USGS Basin & Sub-watershed No.: (10280203-030001)

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

FACILITY DESCRIPTION

Outfall #001 - Domestic Wastewater - SIC #4952

Two cell, partial discharge lagoon system/irrigation onto crop land during growing season as needed for consumptive irrigation/sludge is retained in lagoon.

Design population equivalent is 1,850.

Design flow is 222,383 gallons per day (1-in-10 year design including net rainfall minus evaporation).

Average design flow is 185,000 gallons per day (dry weather flows).

Design sludge production is 27.75 dry tons/year.

This permit authorizes only wastewater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 644.051.6 of the Law.

July 11, 2003 September 19, 2003
Effective Date Revised Date


Stephen M. Mahford, Director, Department of Natural Resources
Executive Secretary, Clean Water Commission

July 10, 2008
Expiration Date
MO 780-0041 (10-93)

G. Irene Crawford, Director, Northeast Regional Office

FACILITY DESCRIPTION (continued)

Outfall #001 - Domestic Wastewater

Receiving Stream Watershed: a gaining stream setting.

<u>Design Basis:</u>	<u>Avg Annual</u>
Design dry weather flows	185,000 gpd
Design with 1-in-10 year flows	222,383 gpd
Design PE 1850	

Storm Water Flows: (Macon County)

Average Annual Rainfall. 38 inches
1-in-10 Year Annual Rainfall. 49.4 inches
25-year-24-hour storm: 6 inches

1-in-10 year Flows:	<u>Annual</u>	<u>Percent Reduction Factors for 120 days</u>
Runoff concrete and roof areas	0 ft.	0
Runoff earth areas (lagoon berm, lots, etc)	2.0 ft.	50%
Rainfall minus Evaporation (R-E) on lagoon water surface	1.4 ft.	70%

Primary Cell

<u>Lagoon Dimensions:</u>	<u>Surface Area</u>	<u>Depth from Bottom</u>	<u>Pump down depth (from spillway)</u>
Center Line Top Berm:	480,249 sq.ft.	by 9 feet depth	
Inside Top Berm:	471,969 sq.ft.	by 9 feet depth	
Freeboard: (top berm to spillway)		2 feet depth	
Spillway:	456,508 sq.ft.	by 7 feet depth	0.0 feet
Minimum operating level		2.0 feet depth	5.0 feet
Aerobic BOD design basis		3.0 feet depth	
Storage volume (minimum to maximum water levels:	12,470,000	gallons	

Berm top width: 12 feet

Berm runoff area (Centerline to emergency spillway: 23,741 sq.ft.

1-in-10 year, Total Annual Storm water flows into lagoon (R-E): 471,118.8 cu.ft.
(3,523,968.9 gallons)

Secondary Cell

<u>Lagoon Dimensions:</u>	<u>Surface Area</u>	<u>Depth from Bottom</u>	<u>Pump down depth (from spillway)</u>
Center Line Top Berm:	159,936 sq.ft.	by 12 feet depth	
Inside Top Berm:	154,812 sq.ft.	by 12 feet depth	
Freeboard: (top berm to spillway)		2 feet depth	
Spillway:	145,055 sq.ft.	by 10 feet depth	0.0 feet
Minimum operating level		2.0 feet depth	8.0 feet
Aerobic BOD design basis		3.0 feet depth	
Storage volume (minimum to maximum water levels)	6,545,000	gallons	

Berm top width: 12 feet

Berm runoff area (Centerline to emergency spillway: 14,881 sq.ft.

1-in-10 year, Total Annual Storm water flows into lagoon (R-E): 157,034.9 cu.ft.
(1,174,621 gallons)

FACILITY DESCRIPTION (continued)

<u>Storage Capacity:</u>	<u>Days of Storage</u>	<u>Avg Annual</u>
Design for Dry weather Flows:	103 days	
Design with 1-in 10 year flows:	86 days	

Land Application to crop land: SW ¼, Section 17, T60N, R14W and NW ¼, NW ¼, Section 17, T60N, R14W

Irrigation Volume/year: 21,178,872 gallons (including 1-in-10 year flows)

Irrigation areas: 130 acres at design loading (190 acres total available)

Application rates/acre: 0.2 inch/hour; 3 inches/week; 6 inches/year

Field slopes: less than 8 percent

Equipment type: center pivot

Vegetation: row crops

Application rate is based on: hydraulic loading rate

Outfall #002 - Golf Course

Chlorination\golf course pond\land application area at a municipal golf course consisting of 60 acres, holes 1 - 18, at a legal description of S ¼ of Section 7, T60N, R14W.

Land Application to golf course: SW ¼, Section 7, T60N, R14W

Irrigation Volume/year: 19,549,728 gallons (including 1-in-10 year flows)

Irrigation areas: 60 acres at design loading (60 acres total available)

Application rates/acre: 0.2 inch/hour; 3 inches/week; 12 inches/year

Field slopes: less than 8 percent

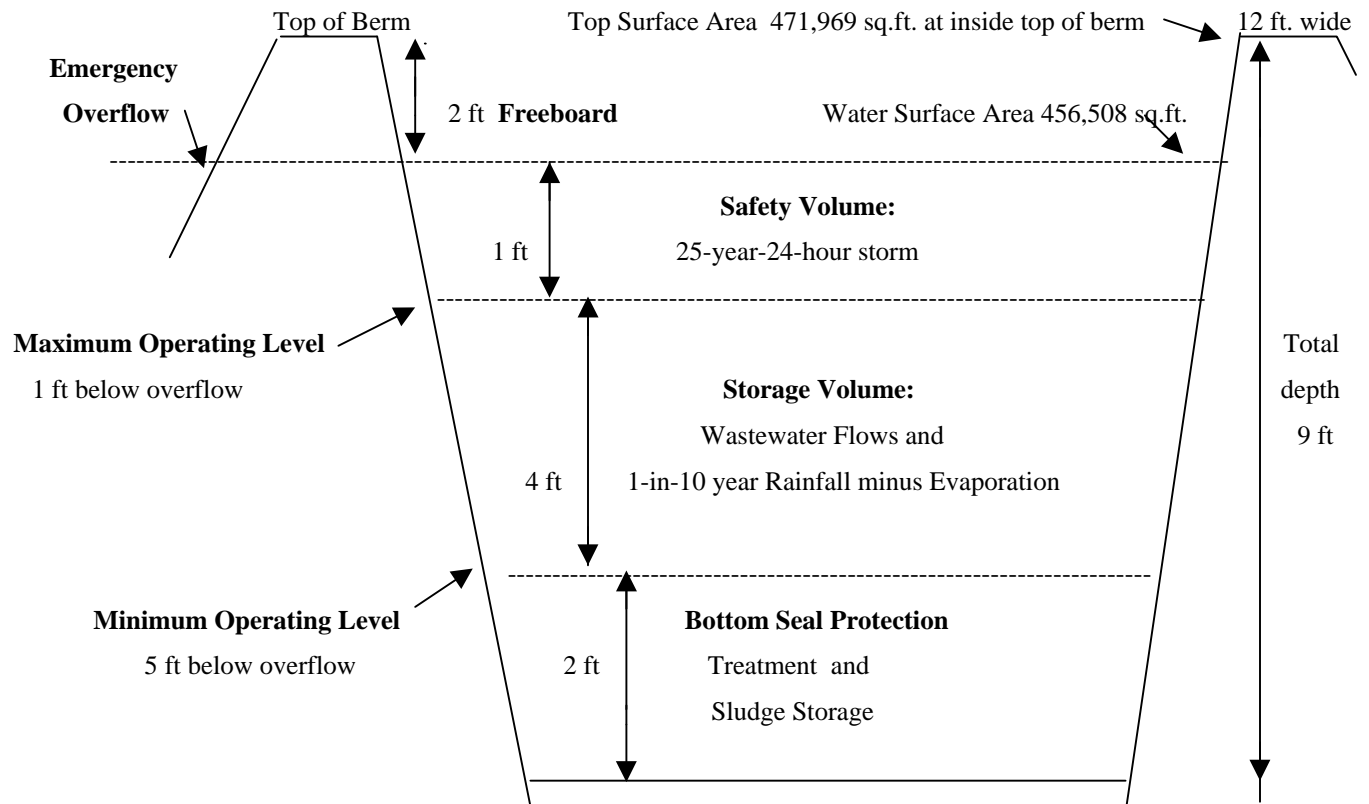
Equipment type: sprinklers

Vegetation: golf course

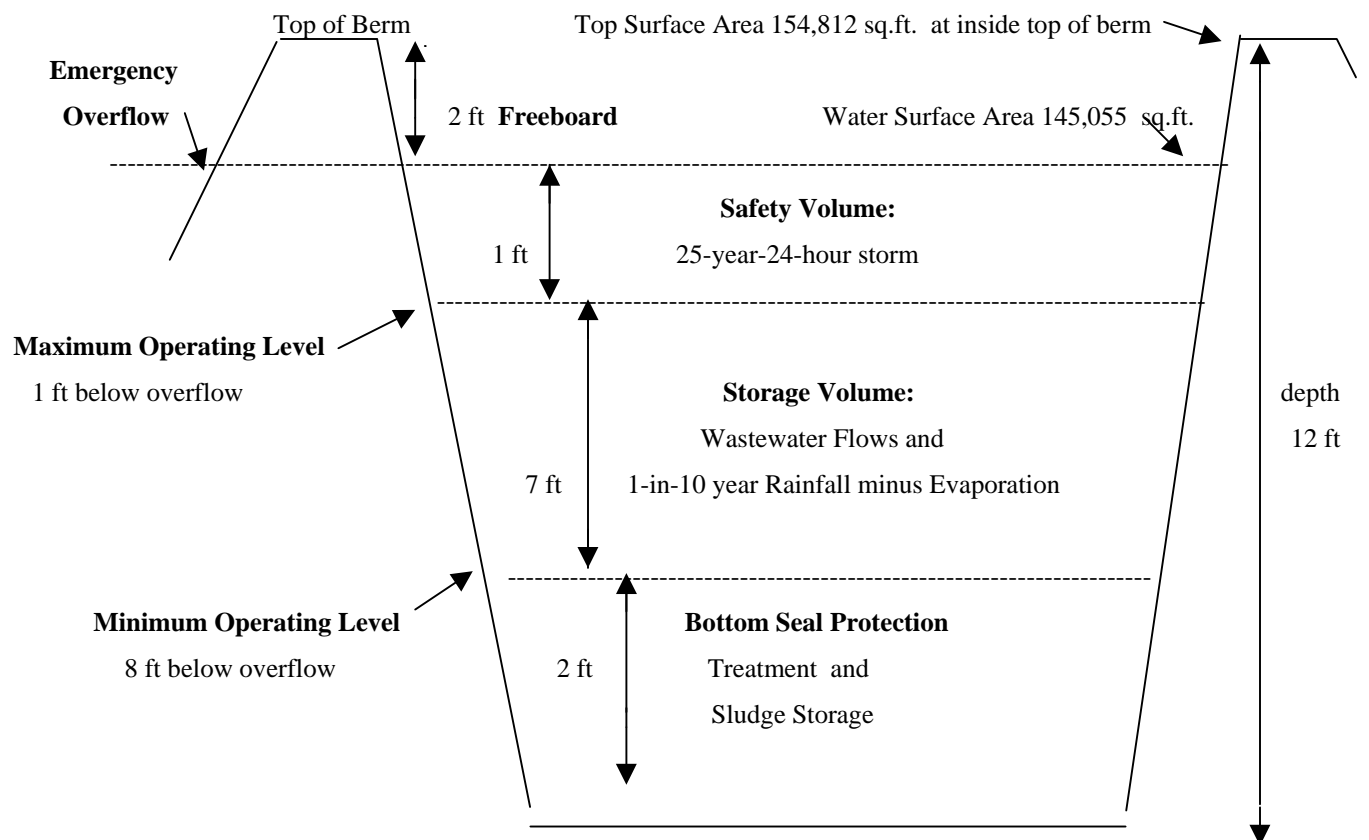
Application rate is based on: hydraulic loading rate

FACILITY DESCRIPTION (continued)
Additional Comments:

LAGOON PROFILE (Existing Primary Cell)



LAGOON PROFILE (Existing Secondary Cell)



A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					PAGE NUMBER 5 of 10	
					PERMIT NUMBER MO-0058246	
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The interim effluent limitations shall become effective upon issuance and remain in effect until March 31, 2006. Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #001</u> - Emergency discharge from lagoon site or irrigation sites (Note 1)						
Flow	MGD	*		*	once/day	24 hr. estimate
Biochemical Oxygen Demand ₅	mg/L		65	45	once/month**	grab
Total Suspended Solids	mg/L		110	70	once/month**	grab
Ammonia as N	mg/L		*	*	once/month	grab
Total Phosphorus	mg/L		*	*	once/month	grab
NO ₂ + NO ₃ as N	mg/L		*	*	once/month	grab
Temperature	°C	*		*	once/month	grab
pH - Units	SU	***		***	once/month	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE <u>October 28, 2003</u> .						
<u>Outfall #001</u> - Land Application Operational Monitoring (Notes 2 & 3)						
Lagoon Freeboard	feet	*			once/month	measured
Irrigation Period	hours	*			daily	total
Volume Irrigated	gallons	*			daily	total
Application Area	acres	*			daily	total
Application Rate	inches/ acre	*			daily	total
Rainfall	inches	*			daily	total
MONITORING REPORTS SHALL BE SUBMITTED <u>ANNUALLY</u> ; THE FIRST REPORT IS DUE <u>January 28, 2004</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
B. STANDARD CONDITIONS						
IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED <u>Parts I, II & III</u> STANDARD CONDITIONS DATED <u>October 1, 1980 and August 15, 1994</u> , AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.						

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					PAGE NUMBER 6 of 10	
					PERMIT NUMBER MO-0058246	
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective April 1, 2006 and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #001</u> - Emergency discharge from lagoon site or irrigation sites (Note 1)						
Flow	MGD	*		*	once/day	24 hr. estimate
Biochemical Oxygen Demand ₅ (April - October)	mg/L		15	8	once/month**	grab
	mg/L		25	12	once/month**	grab
Total Suspended Solids	mg/L		110	70	once/month**	grab
Ammonia as N (April - October)	mg/L		2	1	once/month	grab
	mg/L		3	2	once/month	grab
Total Phosphorus	mg/L		*	*	once/month	grab
NO ₂ + NO ₃ as N	mg/L		*	*	once/month	grab
Temperature	°C	*		*	once/month	grab
pH - Units	SU	***		***	once/month	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE <u>May 28, 2006</u> .						
<u>Outfall #001</u> - Land Application Operational Monitoring (Notes 2 & 3)						
Lagoon Freeboard	feet	*			once/month	measured
Irrigation Period	hours	*			daily	total
Volume Irrigated	gallons	*			daily	total
Application Area	acres	*			daily	total
Application Rate	inches/ acre	*			daily	total
Rainfall	inches	*			daily	total
MONITORING REPORTS SHALL BE SUBMITTED <u>ANNUALLY</u> ; THE FIRST REPORT IS DUE <u>January 28, 2007</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
B. STANDARD CONDITIONS						
IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED <u>Parts I, II & III</u> STANDARD CONDITIONS DATED <u>October 1, 1980 and August 15, 1994</u> , AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.						

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					PAGE NUMBER 7 of 10	
					PERMIT NUMBER MO-0058246	
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #002 - at golf course - Irrigated Wastewater (Notes 4 & 5)</u>						
Fecal Coliform	#/100mL	200		200	once/month	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE <u>May 28, 2006</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
B. STANDARD CONDITIONS						
IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED <u>Parts I, II & III</u> STANDARD CONDITIONS DATED <u>October 1, 1980 and August 15, 1994</u> , AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.						

MO 780-0010 (8/91)

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

- * Monitoring requirement only.
- ** Monitor only when discharge occurs. Report as no-discharge when a discharge does not occur during the report period. This facility is required to meet a removal efficiency of 65% or more.
- *** pH is measured in pH units and is not to be averaged. The pH is to be maintained at or above 6.0 pH units.

Note 1 - Partial Irrigation (consumptive irrigation). Wastewater shall be used during the growing season for consumptive irrigation on crop land and golf course when additional water is needed to supply moisture requirements.

Note 2 - Records shall be maintained and summarized into an annual operating report, which shall be submitted by January 28th of each year for the previous calendar year period. The report shall include the following:

- a. Record of maintenance and repairs performed during the year, average number of times per month the facility is checked to see if it is operating properly, and description of any unusual operating conditions encountered during the year;
- b. The number of days the lagoon has discharged during the year, the discharge flow, the reasons discharge occurred and effluent analysis performed; and
- c. A summary of the irrigation operations including freeboard at the start and end of the irrigation season, the number of days of irrigation for each month, the total gallons irrigated, the total acres used, crops grown, crop yields per acre, the application rate in inches/acre per day and for the year, the monthly and annual precipitation received at the facility and summary of testing results.

Note 3 - Lagoon freeboard shall be reported as lagoon water level in feet below the overflow level. See Special Conditions for Wastewater Irrigation System requirements.

Note 4 - Wastewater that is irrigated shall be sampled at the irrigation pump or golf course pond.

Note 5 - Monitor only when irrigating wastewater at the golf course. Submit annual report by January 28 of each year listing the gallons irrigated each month and total gallons per year at the golf course and summary of test results.

C. SPECIAL CONDITIONS

1. Report as no-discharge when a discharge does not occur during the report period.
2. Outfalls must be marked in field and on the topographic site map submitted with the permit application.
3. Permittee will cease discharge by connection to area wide wastewater treatment system within 90 days of notice of its availability.
4. Water Quality Standards
 - (a) Discharges to waters of the state shall not cause a violation of water quality standards rule under 10 CSR 20-7.031, including both specific and general criteria.
 - (b) General Criteria. The following general water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:
 - (1) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
 - (2) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
 - (3) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
 - (4) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;
 - (5) There shall be no significant human health hazard from incidental contact with the water;
 - (6) There shall be no acute toxicity to livestock or wildlife watering;
 - (7) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
 - (8) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.
5. This permit may be reopened and modified, or alternatively revoked and reissued, to:
 - (a) Comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
 - (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
 - (2) controls any pollutant not limited in the permit.
 - (b) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test or other information indicates changes are necessary to assure compliance with Missouri's Water Quality Standards.
 - (c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving waters which are currently included in Missouri's list of waters of the state not fully achieving the state's water quality standards, also called the 303(d) list.

The permit as modified or reissued under this paragraph shall also contain any other requirements of the Clean Water Act then applicable.

C. SPECIAL CONDITIONS (continued)

6. Sludge and Biosolids Use For Domestic Wastewater Treatment Facilities

- (a) Permittee shall comply with the pollutant limitations, monitoring, reporting, and other requirements in accordance with the attached permit Standard Conditions.
- (b) Permittee is authorized to land apply biosolids that are removed from the domestic wastewater treatment lagoon during lagoon clean-out and maintenance activities. Permit Standard Conditions, Part III shall apply to the land application of biosolids. Permittee shall notify the department at least 180 days prior to the planned removal of biosolids from the lagoon. The department may require submittal of a biosolids management plan for department review and approval as determined appropriate on a case-by-case basis.

7. Annual Report. (Outfall #001 and #002)

An annual report is required in addition to the quarterly reporting under Section A of this permit. The annual report shall be submitted by January 28 of each year for the previous growing season from October 1 through September 30 or an alternate 12 month period approved by the Department and listed in the Operation and Maintenance Manual. This report shall be submitted using report forms approved by the Department and shall include a summary of the monitoring and record keeping required by the Special Conditions and Standard Conditions of this permit.

8. Wastewater Irrigation System onto crop land. (Outfall #001)

- (a) Irrigation Design. Design and operation shall be in accordance with 10 CSR 20-8.020(15). Permittee shall operate the land application system in accordance with the design parameters listed in the Facility Description section of this permit:
 - (1) No-Discharge System. When the Facility Description is ANo-Discharge, wastewater must be stored and irrigated at appropriate times. There shall be no-discharge from the irrigation site or storage lagoon except due to precipitation exceeding either the 1-in-10 year rainfall event for the design storage period or the 25-year-24-hour rainfall event.
- (b) Lagoon Operating Levels - No-discharge Systems. The minimum and maximum operating water levels for the storage lagoon shall be clearly marked. Each lagoon shall be operated so that the maximum water elevation does not exceed one foot below the overflow point except due to exceedances of the 1-in-10 year or 25-year-24 hour storm events. Wastewater shall be land applied whenever feasible based on soil and weather conditions and permit requirements. Storage lagoon(s) shall be lowered to the minimum operating level prior to each winter by November 30.
- (c) General Irrigation Requirements. The wastewater irrigation system shall be operated so as to provide uniform distribution of irrigated wastewater over the entire irrigation site. A complete ground cover of vegetation shall be maintained on the irrigation site unless the system is approved for row crop irrigation. Wastewater shall be land applied only during daylight hours. The wastewater irrigation system shall be capable of irrigating the annual design flow during an application period of less than 100 days or 800 hours per year.
- (d) Saturated/Frozen Conditions. There shall be no irrigation during frozen, snow covered, or saturated soil conditions. There shall be no irrigation on days when more than 0.2 inch of precipitation is received or when there is observation by operator of an imminent or impending rainfall event.
- (e) Buffer Zones. There shall be no irrigation within 300 feet of any down gradient pond, lake, sinkhole, losing stream or water supply withdrawal; 100 feet of gaining streams or tributaries; 150 feet of dwelling; or 50 feet of the property line.
- (f) Public Access Restrictions. Public access shall not be allowed to the irrigation site(s).
- (g) Equipment Checks during Irrigation. The irrigation system and application site shall be visually inspected at least once/4hours during wastewater irrigation to check for equipment malfunctions and runoff from the irrigation site.

C. SPECIAL CONDITIONS (continued)

9. Wastewater irrigation at golf course - Outfall #002
- (a) Wastewater that exceeds fecal coliform limits of 200 colonies/100 mL shall not be irrigated at the golf course.
 - (b) Irrigation shall not occur during access by the public.
 - (c) Wastewater irrigation lines shall be constructed and in accordance with 10 CSR 20-Chapter 8 to avoid use as potable water supplies or cross connection with potable water systems.

D. SCHEDULE OF COMPLIANCE

- 1. Submit plans and specifications by January 2, 2004, for the up-grades of the system.
- 2. Start construction of the upgrades by October 1, 2004.
- 3. Meet no-discharge criteria or discharge limits by April 1, 2006.